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## Gmelin's 13th Edition of the Systema Naturae: A Case of Neglect

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Johan Friedrich Gmelin lived from 1748 to 1804 and was a contemporary of Panzer, Geoffroy, Herbst, Olivier, Fabricius, and other famous entomologists of the late 18th century. However, unlike those famous names, Gmelin's is seldom seen listed as the author of insect species or in synonymies, even though he described hundreds, perhaps thousands, of new species. A few well known animals do carry his name as author: the American oyster, *Crassostrea virginica*; a subspecies of the rough-legged hawk, *Buteo lagopus s. johannis*; the olive fruit fly, *Dacus oleae*; the Australian-pine borer, *Chrysobothris tranquebarica*. Thus he has not been completely overlooked, but only a small proportion of his new species are now catalogued.

Perhaps the absence of citations to Gmelin in insect literature today is primarily due to Fabricius. I scanned Fabricius' post-Gmelin works and did not see a reference to Gmelin. Because Fabricius' writings were for such a long time considered the basic references in entomology, Gmelin was essentially lost to 19th century workers.

Gmelin was the author of the 13th Edition of Linnaeus' Systema Naturae. It was published from 1788 to 1793 and consists of three volumes. Volume 1, on animals, was divided into

<sup>1</sup> I thank Dr. Melville H. Hatch, who brought the Gmelin problem to my attention in 1964, and Dr. Curtis W. Sabrosky, who, as usual, gave excellent nomenclatural advice during this study.

six parts, each of which is large enough to be called a volume; parts 4 and 5, on insects, were published in 1790; I have accepted the dates of publication given by Hopkinson.<sup>2</sup> Volume 2, on plants, was divided into two parts. Volume 3, on minerals, was in one part only. The title page of Gmelin's edition reads, "Caroli a Linne. Systema Naturae per Regna tria Naturae. Ed. 13. Cura Jo. Frid. Gmelin. Lipsiae." Though it is always referred to as an edition of Linnaeus' Systema Naturae, it could more properly be considered a new work because of the vast amount of new material and rearrangements. The format is similar to that of Linnaeus; all species are described and have binomens. It should have the status and consideration given to other books of its time simply because it exists and fulfills nomenclatural requirements, not because it is good zoology. But it does not have that status.

An excellent evaluation of the nomenclature and zoology of Gmelin's 13th Edition was given by A. J. Kohn<sup>3</sup> in a study of the gastropod genus *Comus*. Much of what he said about Gmelin's treatment of gastropods would also apply to insects. Only Gmelin's nomenclature, not his zoological acumen, is of concern here.

Gmelin names which have been overlooked are probably very numerous in insects, but their omission depends on the amount of searching done by workers in each family. For example, Gmelin's name is frequently cited in the Elateridae but not in the Tenebrionidae. Certainly all of his new species should be recorded in catalogues. For each species Gmelin gives, in sequence, a specific name, a number, a description, sometimes a reference or references to previous authors, and a statement of habitat. His specific names would fall into the following four categories (my examples are taken from the Elateridae in volume 1, part 4):

1. *Elater indicus*. On page 1911, Gmelin uses the specific name as proposed by the previous author Herbst and gives a

<sup>2</sup> Proc. Zool. Soc. London, 1907, pp. 1035-1037.

<sup>3</sup> Jour. Linn. Soc. (Zool.), vol. 46, no. 308, pp. 73-102 (1966).

literature citation to the previous author's work which is now considered to have been validly published. This poses no problem; failure to cite Gmelin's use of a name in a complete synonymy is of no consequence. His use of the name *indicus* would merely be listed with other subsequent citations.

2. *Elater lineolatus*. On page 1916, Gmelin uses the specific name as proposed by a previous author and gives a literature citation to that previous work, "Mus. Lesk.,"<sup>4</sup> which is now considered not to have been validly published. Gmelin's use of the name *Elater lineolatus* with a description constitutes publication of a new species. The specific name was overlooked in recent catalogues.

3. *Elater erythropus*. On page 1912, Gmelin gives a literature citation to *Elater rufipes* Herbst by the species number assigned by Herbst, but Gmelin uses a different name, *erythropus*. Gmelin was merely renaming Herbst's species; the action was unnecessary. The name *erythropus* thus becomes a junior synonym of *rufipes*. Gmelin's specific name does not appear in recent catalogues.

4. *Elater tetrastichon*. On page 1910, Gmelin does not give a literature citation to a previous author. He is obviously presenting an original description of a new species. Gmelin's specific name does not appear in recent catalogues; it will have to be worked into the present classification or synonymy.

Those specific names of Gmelin that must be considered as new proposals, categories 2, 3, and 4, could cause many problems for taxonomists. What about comparing Gmelin's specimens with types of known species? Kohn<sup>5</sup> says, "Unfortunately it is likely that all of the new species were based entirely on published information, rather than on specimens." How-

<sup>4</sup> The citation "Mus. Lesk." refers to Museum Leskeanum, Regnum Animale, by D. L. G. Karsten, 1789, with the insect section written by J. J. Zschachi. The insect section had previously been published separately in 1788 by Zschachi. Zschachi's works are not completely binominal. Gmelin refers to many publications which we today do not consider validly published.

<sup>5</sup> *Op. cit.*

ever, in those cases where Gmelin refers to a previous author, the specimens used by that author or the figures published by him could be used as type material. Otherwise, Gmelin's descriptions must be used. But most of Gmelin's original descriptions would probably be worthless in comparing his species with currently known species. Perhaps the simplest solution would be to group the names of unrecognizable species as *nomina dubia* after known species of a genus.

A taxonomist could probably avoid bringing to life a Gmelin name as a senior subjective synonym by resorting to the 50-year rule, Article 23 (b) in the International Code of Zoological Nomenclature. But the problem of homonymy of Gmelin's names is not so easily avoided. How many of Gmelin's combinations of generic and specific names for new species will preoccupy later combinations? Quite a few, I fear—they could wreck some insect names of long standing. The 50-year rule does not apply to homonyms; as of now there is no way, save by suspension of the rules of nomenclature, to avoid destroying a younger well known homonym. Each of Gmelin's new species will have to be judged separately; the 13th Edition can not be thrown out in toto, for some of his names are already in common use.

It is extremely unfortunate that this large work has so long been overlooked or ignored. But Gmelin's 13th Edition, like a mountain, exists, and, like a mountain, must be climbed.